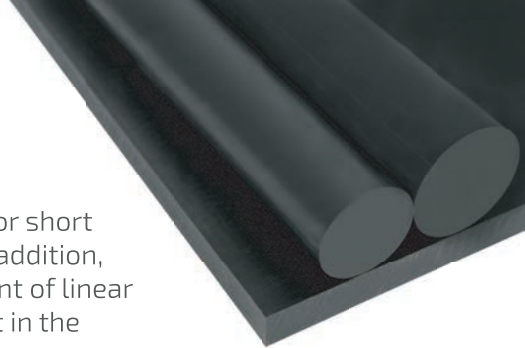




HIGH-PERFORMANCE PLASTICS ●

SEMITRON® ESd 410 C

Amorphous plastic, with excellent mechanical performance up to 200°C (for short periods), SEMITRON® ESd 410C provides solutions at high temperatures. In addition, SEMITRON® ESd 410C exhibits excellent dimensional stability (low coefficient of linear thermal expansion and low water absorption), ideal for handling equipment in the electrical, electronic or semiconductor industries.

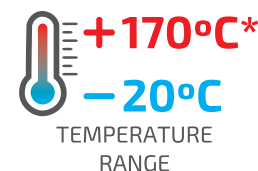
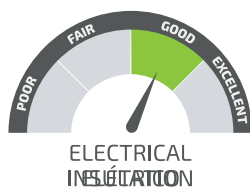


MAIN CHARACTERISTICS

- Permanent static dissipative
- Dissipates static loads (5kV)
- Its composition does not contain any metal or graphite powder
- Low stress when machining with reduced tolerances
- High robustness and stiffness
- Low moisture absorption

APPLICATIONS

- Holders used in the transport of integrated circuits
- Manufacturing and handling of sensitive electronic components such as hard disks and circuit boards
- Material Handling Applications
- High-speed electronic printing components
- Reproduction Equipment



*continuously (20.000H)



HIGH-PERFORMANCE PLASTICS TECHNICAL DATASHEET

| PROPERTIES | TEST METHODS | UNITS | SEMITRON® 410 C |
|---|--------------------|-------------------|-----------------------------------|
| COLOR | - | - | BLACK |
| DENSITY | ISO 1183-1 | g/cm ³ | 1.41 |
| WATER ABSORPTION | | | |
| AFTER 24/96H IMMERSION IN WATER OF 23°C ¹ | ISO 62 | mg | - |
| AFTER 24/96H IMMERSION IN WATER OF 23°C ¹ | ISO 62 | % | - |
| AT SATURATION IN AIR OF 23°C / 50% RH | - | % | 0.60 |
| AT SATURATION IN WATER OF 23°C | - | % | 1.10 |
| THERMAL PROPERTIES | | | |
| MELTING TEMPERATURE (DSC, 10°C/MIN) | ISO 11357-1/-3 | °C | NA |
| GLASS TRANSITION TEMPERATURE (DSC, 20°C/MIN) ² | ISO 11357-1/-2 | °C | 215 |
| THERMAL CONDUCTIVITY AT 23°C | - | W/(K.m) | 0.35 |
| COEFFICIENT OF LINEAR THERMAL EXPANSION | | | |
| AVERAGE VALUE BETWEEN 23-100°C | - | m/(m.K) | 40 x 10 ⁻⁶ |
| AVERAGE VALUE BETWEEN 23-150°C | - | m/(m.K) | 45 x 10 ⁻⁶ |
| AVERAGE VALUE ABOVE 150°C | - | m/(m.K) | 45 x 10 ⁻⁶ |
| TEMPERATURE OF DEFLECTION UNDER LOAD | | | |
| METHOD A 1.8 MPA | ISO 75-1/-2 | °C | 200 |
| MAXIMUM ALLOWABLE SERVICE TEMPERATURE IN AIR | | | |
| FOR SHORT PERIODS ³ | - | °C | 200 |
| CONTINUOUSLY (MIN. 20.000H) ⁴ | - | °C | 170 |
| MINIMUM SERVICE TEMPERATURE ⁵ | - | °C | -20 |
| FLAMMABILITY ⁶ | | | |
| "OXYGEN INDEX" | ISO 4589-1/-2 | % | 47 |
| ACCORDING TO UL94 (1.5/3MM DE ESPESSURA) | - | - | V-0/V-0 |
| MECHANICAL PROPERTIES AT 23°C⁷ | | | |
| TENSION TEST ⁸ | | | |
| TENSILE STRESS AT YIELD/TENSILE STRESS AT BREAK | ISO 527-1/-2 | MPa | NA/62 |
| TENSILE STRENGTH ⁹ | ISO 527-1/-2 | MPa | 62 |
| TENSILE STRAIN AT BREAK ⁹ | ISO 527-1/-2 | % | 2 |
| TENSILE MODULUS OF ELASTICITY ¹⁰ | ISO 527-1/-2 | MPa | 5850 |
| COMPRESSION TEST ¹¹ | | | |
| COMPRESSIVE STRESS AT 1/2/5% NOMINAL STRAIN ¹⁰ | ISO 604 | MPa | 44/76/114 |
| CHARPY IMPACT STRENGTH - UNNOTCHED ² | ISO 179-1/1eU | KJ/m ² | 20 |
| CHARPY IMPACT STRENGTH - NOTCHED | ISO 179-1/1eA | KJ/m ² | 4 |
| BALL INDENTATION HARDNESS ¹³ | ISO 2039-1 | N/mm ² | - |
| ROCKWELL HARDNESS ¹³ | ISO 2039-2 | - | M 115 |
| ELECTRICAL PROPERTIES AT 23°C | | | |
| ELECTRIC STRENGTH ¹⁴ | IEC 60243-1 | kV/mm | - |
| VOLUME RESISTIVITY | IEC 60093 | Ohm.cm | 10 ⁴ - 10 ⁶ |
| SURFACE RESISTIVITY | ANSI/ESD STM 11.11 | Ohm/sq. | 10 ⁴ - 10 ⁶ |
| RELATIVE PERMITTIVITY ε : A 100HZ | IEC 60250 | - | - |
| RELATIVE PERMITTIVITY ε : A 1MHZ | IEC 60250 | - | 3.0 |
| DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ | IEC 60250 | - | - |
| DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ | IEC 60250 | - | 0.002 |
| COMPARATIVE TRACKING INDEX (CTI) | IEC 60112 | - | - |

NOTE: 1 g/cm³ = 1000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 KV/mm = 1 MV/m

(1) According to method 1 of iso 62 and done on discs ø 50x3 mm **(2)** The figures given for this properties are only attributed to amorphous rather than semi-crystalline materials. **(3)** For short exposure periods only (a few hours) in applications where only very low loads are applied to the material. **(4)** Temperature which it resists for a minimum period of 20,000 hours. After this time, there is a decrease of about 50% in tensile strength compared to the original value. The given temperature values are based on the thermal oxidation degradation which causes a reduction of the properties. In the meantime, the maximum permissible service temperature depends in many cases essentially on the deduction and magnitude of the mechanical stresses to which the material is subject. **(5)** As the impact strength decreases with decreasing temperature, the minimum permissible service temperature is determined by the extent of impact to which the material is subjected. The values given are based on unfavorable impact conditions and can not therefore be considered absolute limits. **(6)** These assessments are derived from the technical specifications of the manufacturers of the raw materials and do not allow the determination of the behavior of the materials under fire conditions. There is no yellow card for these formats. **(7)** Most of the figures given by the mechanical properties of the extruded materials are mean values of the tests done on specimens machined with ø 40-60 mm. With the exception of hardness tests, the best specimens were taken from an area between the center and outer diameter, with their length in the longitudinal direction (parallel to the direction of extrusion). **(8)** Specimen testing: Type 1b. **(9)** Speed test: 5 or 50 mm / min. **(10)** Speed test: 1 mm / min. **(11)** Test specimens: cylinders ø 8x16 mm. **(12)** Pendulum used: 4J. **(13)** Test on 10 mm thick specimens. **(14)** Test on 1 mm thick specimens.

The dielectric strength of the Ketron Peek 1000 (black) Ppsu 1000 black may be considerably lower than the figures listed in the table referring to non-black materials. It should be noted that the values of the compression properties of the Duratron 4503 PAI and 4501 PAI alloys may differ significantly.